

What is claimed is:

1. Use of a metal complex compound of formula (1)



wherein Me is manganese, titanium, iron, cobalt, nickel or copper,

X is a coordinating or bridging radical,

n and m are each independently of the other an integer having a value of from 1 to 8,

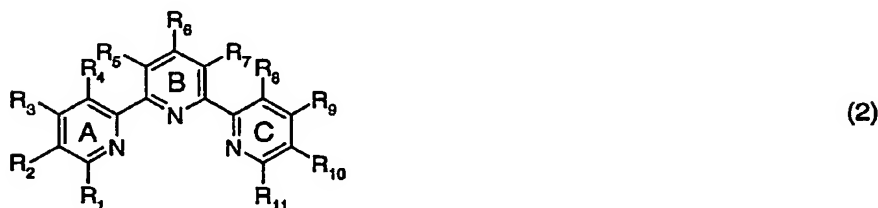
p is an integer having a value of from 0 to 32,

z is the charge of the metal complex,

Y is a counter-ion,

q = z/(charge Y), and

L is a ligand of formula (2)



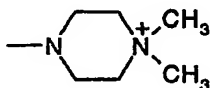
wherein

R₁, R₂, R₃, R₄, R₅, R₆, R₇, R₈, R₉, R₁₀ and R₁₁ are each independently of the others hydrogen; unsubstituted or substituted C₁-C₁₈alkyl or aryl; cyano; halogen; nitro; -COOR₁₂ or -SO₃R₁₂ wherein R₁₂ is in each case hydrogen, a cation or unsubstituted or substituted C₁-C₁₈alkyl or aryl; -SR₁₃, -SO₂R₁₃ or -OR₁₃ wherein R₁₃ is in each case hydrogen or unsubstituted or substituted C₁-C₁₈alkyl or aryl; -NR₁₄R₁₅; -(C₁-C₆alkylene)-NR₁₄R₁₅; -N^oR₁₄R₁₅R₁₆; -(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆; -N(R₁₃)-(C₁-C₆alkylene)-NR₁₄R₁₅; -N[(C₁-C₆alkylene)-NR₁₄R₁₅]₂; -N(R₁₃)-(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆; -N[(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆]₂; -N(R₁₃)-N-R₁₄R₁₅ or -N(R₁₃)-N^oR₁₄R₁₅R₁₆, wherein R₁₃ is as defined above and R₁₄, R₁₅ and R₁₆ are each independently of the other(s) hydrogen or unsubstituted or substituted C₁-C₁₈alkyl or aryl, or R₁₄ and R₁₅ together with the nitrogen atom bonding them form an unsubstituted or

substituted 5-, 6- or 7-membered ring which may optionally contain further heteroatoms;

with the proviso that

- (i) at least one of the substituents R_1 - R_{11} contains a quaternized nitrogen atom which is not directly bonded to one of the three pyridine rings A, B or C and that
- (ii) Y is neither I^- nor Cl^- in the case that Me is Mn(II), R_1 - R_5 and R_7 - R_{11} are hydrogen and R_6 is



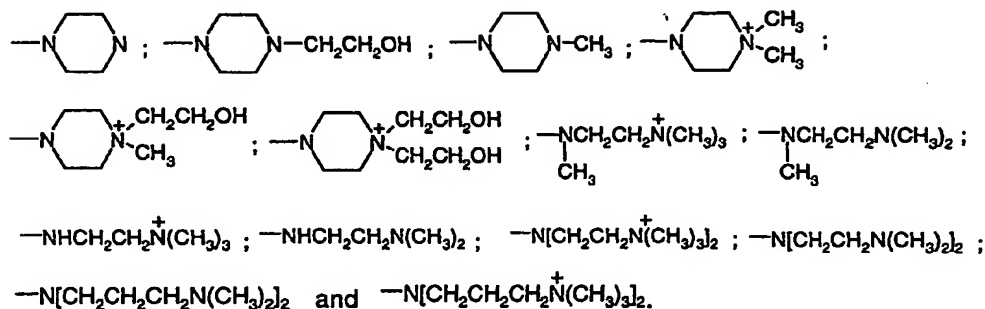
as catalysts for oxidation reactions.

2. Use according to claim 1, wherein Me is manganese which is present in oxidation state II, III, IV or V.
3. Use according to claim 1, wherein Me is iron which is present in oxidation state II, III or IV.
4. Use according to any one of claims 1, 2 and 3, wherein X is CH_3CN , H_2O , F^- , Cl^- , Br^- , HOO^- , O_2^{2-} , O^{2-} , $R_{17}COO^-$, $R_{17}O^-$, $LMeO^-$ or $LMeOO^-$ wherein R_{17} is hydrogen, $-SO_3C_1-C_4alkyl$, or unsubstituted or substituted C_1 - $C_{18}alkyl$ or aryl, and L and Me are as defined in claim 1.
5. Use according to any one of claims 1 to 4, wherein Y is $R_{17}COO^-$, ClO_4^- , BF_4^- , PF_6^- , $R_{17}SO_3^-$, $R_{17}SO_4^-$, SO_4^{2-} , NO_3^- , F^- , Cl^- , Br^- , I^- , citrate, tartrate or oxalate wherein R_{17} is hydrogen or unsubstituted or substituted C_1 - $C_{18}alkyl$ or aryl.
6. Use according to any one of claims 1 to 5, wherein n is an integer having a value of from 1 to 4, especially 1 or 2.
7. Use according to any one of claims 1 to 6, wherein m is an integer having a value of 1 or 2, especially 1.

8. Use according to any one of claims 1 to 7, wherein p is an integer having a value of from 0 to 4, especially 2.
9. Use according to any one of claims 1 to 8, wherein z is an integer having a value of from 8- to 8+.
10. Use according to any one of claims 1 to 9, wherein aryl is phenyl or naphthyl unsubstituted or substituted by C₁-C₄alkyl, C₁-C₄alkoxy, halogen, cyano, nitro, carboxyl, sulfo, hydroxyl, amino, N-mono- or N,N-di-C₁-C₄alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or by naphthoxy.
11. Use according to any one of claims 1 to 10 wherein the 5-, 6- or 7-membered ring formed by R₁₄ and R₁₅ together with the nitrogen atom bonding them is an unsubstituted or C₁-C₄alkyl-substituted pyrrolidine, piperidine, piperazine, morpholine or azepane ring, wherein the nitrogen atoms can optionally be quaternized.
12. Use according to any one of claims 1 to 11, wherein R₆ is C₁-C₁₂alkyl; phenyl unsubstituted or substituted by C₁-C₄alkyl, C₁-C₄alkoxy, halogen, cyano, nitro, carboxyl, sulfo, hydroxyl, amino, N-mono- or N,N-di-C₁-C₄alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or naphthoxy; cyano; halogen; nitro; -COOR₁₂ or -SO₃R₁₂ wherein R₁₂ is in each case hydrogen, a cation, C₁-C₁₂alkyl, or phenyl unsubstituted or substituted as indicated above; -SR₁₃, -SO₂R₁₃ or -OR₁₃ wherein R₁₃ is in each case hydrogen, C₁-C₁₂alkyl, or phenyl unsubstituted or substituted as indicated above; -NR₁₄R₁₅; -(C₁-C₆alkylene)-NR₁₄R₁₅; -N[®]R₁₄R₁₅R₁₆; -(C₁-C₆alkylene)-N[®]R₁₄R₁₅R₁₆; -N(R₁₃)-(C₁-C₆alkylene)-NR₁₄R₁₅; -N(R₁₃)-(C₁-C₆alkylene)-N[®]R₁₄R₁₅R₁₆; -N(R₁₃)-N-R₁₄R₁₅ or -N(R₁₃)-N[®]R₁₄R₁₅R₁₆, wherein R₁₃ can have one of the above meanings and R₁₄, R₁₅ and R₁₆ are each independently of the other(s) hydrogen, unsubstituted or hydroxyl-substituted C₁-C₁₂alkyl, or phenyl unsubstituted or substituted as indicated above, or R₁₄ and R₁₅ together with the nitrogen atom bonding them form a pyrrolidine, piperidine, piperazine, morpholine or azepane ring which is unsubstituted or substituted by at least one unsubstituted C₁-C₄alkyl and/or substituted C₁-C₄alkyl, wherein the nitrogen atom can be quaternized, and

$R_1, R_2, R_3, R_4, R_5, R_7, R_8, R_9, R_{10}$ and R_{11} can be as defined in claim 1 or are hydrogen.

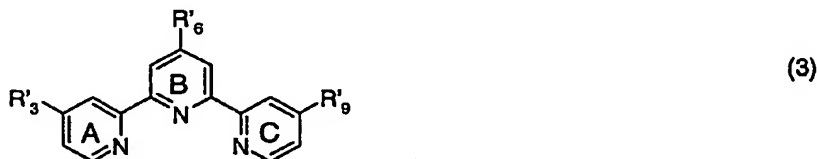
13. Use according to claim 12, wherein R_8 is



and

$R_1, R_2, R_3, R_4, R_5, R_7, R_8, R_9, R_{10}$ and R_{11} are as defined above or are hydrogen.

14. Use according to claim 12 or 13, wherein the ligand L is a compound of formula



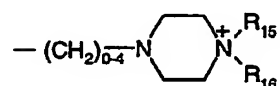
wherein

R'_3, R'_6 and R'_9 are as defined for R_6 in claim 12 or 13, wherein R'_3 and R'_9 can additionally be hydrogen.

15. Use according to claim 14, wherein

R'_3, R'_6 and R'_9 are each independently of the others phenyl unsubstituted or substituted by C_1 - C_4 alkyl, C_1 - C_4 alkoxy, halogen, phenyl or hydroxyl; cyano; nitro; $-\text{COOR}_{12}$ or $-\text{SO}_3\text{R}_{12}$, wherein R_{12} is in each case hydrogen, a cation, C_1 - C_4 alkyl or phenyl; $-\text{SR}_{13}$, $-\text{SO}_2\text{R}_{13}$ or $-\text{OR}_{13}$ wherein R_{13} is in each case hydrogen, C_1 - C_4 alkyl or phenyl, $-\text{N}(\text{CH}_3)\text{-NH}_2$ or $-\text{NH-NH}_2$; amino; N-mono- or N,N-di- C_1 - C_4 alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, wherein the nitrogen atoms, especially the nitrogen atoms which are not bonded to one of the three pyridine rings A, B or C, may be quaternized; N-mono- or N,N-di- C_1 - C_4 alkyl- $\text{N}^+\text{R}_{14}\text{R}_{15}\text{R}_{16}$, unsubstituted or substituted by hydroxy in the alkyl moiety, wherein R_{14}, R_{15} and R_{16}

are each independently of the others hydrogen, unsubstituted or hydroxyl-substituted C₁-C₁₂alkyl, or phenyl unsubstituted or substituted as indicated above, or R₁₄ and R₁₅ together with the nitrogen atom bonding them form a pyrrolidine, piperidine, morpholine or azepane ring unsubstituted or substituted by at least one C₁-C₄alkyl or by at least one unsubstituted C₁-C₄alkyl and/or substituted C₁-C₄alkyl wherein the nitrogen atom can be quaternized; N-mono- or N,N-di-C₁-C₄alkyl-NR₁₄R₁₅ unsubstituted or substituted by hydroxy in the alkyl moiety, wherein R₁₄ and R₁₅ can have the meanings indicated above; or a radical



wherein R₁₅ and R₁₆ have the meanings indicated above, preferably C₁-C₄alkyl, and the ring may be substituted, where R'₃ and R'₉ can likewise be hydrogen.

16. Use according to claim 14 or 15, wherein R₆ is hydroxy.
17. Use according to any of claims 1-13, wherein at least one of the substituents R₁-R₁₁, preferably one of the substituents R₃, R₆ and/or R₉, is one of the following radicals
 -(C₁-C₆alkylene)-N⁺R₁₄R₁₅R₁₆; -N(R₁₃)-(C₁-C₆alkylene)-N⁺R₁₄R₁₅R₁₆;
 -N[(C₁-C₆alkylene)-N⁺R₁₄R₁₅R₁₆]₂; -N(R₁₃)-N⁺R₁₄R₁₅R₁₆, wherein R₁₃ is in each case hydrogen, C₁-C₄alkyl or phenyl and R₁₄, R₁₅ and R₁₆ are each independently of the others hydrogen or substituted or unsubstituted C₁-C₁₈alkyl or aryl, or R₁₄ and R₁₅ together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms; or -NR₁₄R₁₅;
 -(C₁-C₆alkylene)-NR₁₄R₁₅; -N(R₁₃)-(C₁-C₆alkylene)-NR₁₄R₁₅;
 -N[(C₁-C₆alkylene)-NR₁₄R₁₅]₂; -N(R₁₃)-N-R₁₄R₁₅, wherein R₁₃ and R₁₆ are as defined above and R₁₄ and R₁₅ together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which is unsubstituted or substituted by at least one unsubstituted C₁-C₄alkyl and/or substituted C₁-C₄alkyl and may contain further heteroatoms, wherein at least one nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.
18. Use according to any of claims 14-16, wherein at least one of the substituents R'₃, R'₆ and R'₉, preferably R'₃ and/or R'₉ is one of the following radicals

$-(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$;
 $-N[(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}]_2$; $-N(R_{13})-N^{\oplus}R_{14}R_{15}R_{16}$, wherein R_{13} is in each case hydrogen, C_1-C_4 alkyl or phenyl and R_{14} , R_{15} and R_{16} are each independently of the others hydrogen or substituted or unsubstituted C_1-C_{18} alkyl or aryl, or R_{14} and R_{15} together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms; or $-NR_{14}R_{15}$;
 $-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$;
 $-N[(C_1-C_6\text{alkylene})-NR_{14}R_{15}]_2$; $-N(R_{13})-N-R_{14}R_{15}$, wherein R_{13} and R_{16} are as defined above and R_{14} and R_{15} together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which is unsubstituted or substituted by at least one unsubstituted C_1-C_4 alkyl and/or substituted C_1-C_4 alkyl and may contain further heteroatoms, wherein at least one nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.

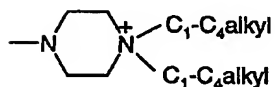
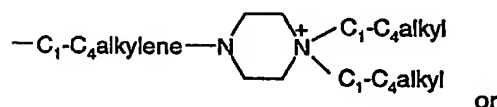
19. Use according to any of claims 1-13, wherein at least one of the substituents R_1 - R_{11} , preferably one of the substituents R_3 , R_6 and/or R_9 , is one of the following radicals
- $-(C_1-C_4\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$;
 $-N[(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}]_2$; $-N(R_{13})-N^{\oplus}R_{14}R_{15}R_{16}$, wherein R_{13} is as defined above and R_{14} , R_{15} and R_{16} are each independently of the others hydrogen or substituted or unsubstituted C_1-C_{12} alkyl or aryl, or R_{14} and R_{15} together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which may be unsubstituted or substituted by at least one unsubstituted C_1-C_4 alkyl and/or substituted C_1-C_4 alkyl and may contain further heteroatoms; or
 $-NR_{14}R_{15}$; $-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$;
 $-N[(C_1-C_6\text{alkylene})-NR_{14}R_{15}]_2$; $-N(R_{13})-N-R_{14}R_{15}$, wherein R_{13} and R_{16} are as defined above and R_{14} and R_{15} together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms, wherein the nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.
20. Use according to any of claims 14-16, wherein at least one of the substituents R_1 - R_{11} , preferably one of the substituents R_3 , R_6 and/or R_9 , is one of the following radicals
- $-(C_1-C_4\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-N^{\oplus}R_{14}R_{15}R_{16}$;

$-N[(C_1-C_6\text{alkylene})-N^+R_{14}R_{15}R_{16}]_2$; $-N(R_{13})-N^+R_{14}R_{15}R_{16}$, wherein R_{13} is as defined above and R_{14} , R_{15} and R_{16} are each independently of the others hydrogen or substituted or unsubstituted C_1-C_{12} alkyl or aryl, or R_{14} and R_{15} together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which is unsubstituted or substituted by at least one unsubstituted C_1-C_4 alkyl and/or substituted C_1-C_4 alkyl and may contain further heteroatoms; or

$-NR_{14}R_{15}$; $-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$; $-N(R_{13})-(C_1-C_6\text{alkylene})-NR_{14}R_{15}$;

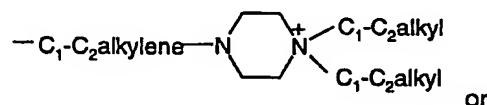
$-N[(C_1-C_6\text{alkylene})-NR_{14}R_{15}]_2$; $-N(R_{13})-N-R_{14}R_{15}$, wherein R_{13} and R_{16} are as defined above and R_{14} and R_{15} together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms, wherein the nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.

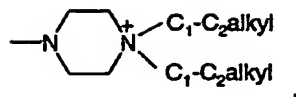
21. Use according to claim 19 or 20, wherein at least one of the substituents R_1 - R_{11} , preferably one of the substituents R_3 , R_8 and/or R_9 , is one of the radicals



wherein the unbranched or branched alkylene group may be substituted, and wherein the independently unbranched or branched alkyl groups may be substituted and wherein the piperazine ring may be substituted.

22. Use according to claim 21, wherein at least one of the substituents R_1 - R_{11} , preferably one of the substituents R_3 , R_8 and/or R_9 , is one of the radicals





wherein the unbranched or branched alkylene group may be substituted, and wherein the alkyl groups may be substituted independently of the other and wherein the piperazine ring may be substituted.

23. Use according to any one of claims 1 to 22, wherein a metal complex compound of formula (1) is used in a washing, cleaning, disinfecting or bleaching agent.
24. Use according to claim 23, wherein a metal complex compound of formula (1) is formed *in situ* in the washing, cleaning, disinfecting or bleaching agent.
25. Use according to any one of claims 1 to 24, wherein a metal complex compound of formula (1) is used together with a peroxy compound for the bleaching of spots or stains on textile material or for the prevention of the redeposition of migrating dyes in the context of a washing process or for the cleaning of hard surfaces.
26. Use according to any one of claims 1 to 22, wherein a metal complex compound of formula (1) according to claim 1 is used as a catalyst for reactions with a peroxy compound for bleaching in the context of paper-making.
27. Use according to any one of claims 1 to 22, wherein a metal complex compound of formula (1) according to claim 1 is used as a catalyst for the waste water treatment.
28. Use according to any one of claims 1 to 22, wherein a metal complex compound of formula (1) according to claim 1 is used as a catalyst for the delignification of cellulose.
29. Use according to any one of claims 1 to 22, wherein mixtures of manganese complexes of the formula (1) with iron complexes of the formula (1) are used for preventing the redeposition of migrating dyes and at the same time bleaching of spots or stains on textile material.

30. Use according to claim 29, wherein mixtures of manganese complexes of the formula (1) with iron complexes of the formula (1'), which corresponds to the formula (1) but contains no quaternized nitrogen atoms, are used.
31. A metal complex compound of formula (1a)



wherein Me is manganese, titanium, iron, cobalt, nickel or copper,

X is a coordinating or bridging radical,

n and m are each independently of the other an integer having a value of from 1 to 8,

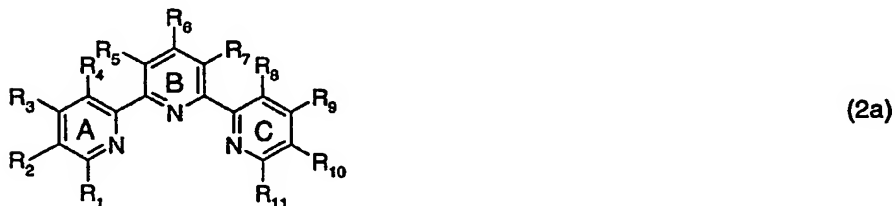
p is an integer having a value from 0 to 32,

z is the charge of the metal complex,

Y is a counter-ion,

q = z/(charge Y), and

L is a ligand of formula (2a)

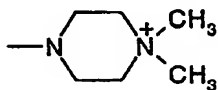


wherein

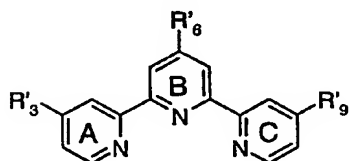
R₆ is unsubstituted or substituted C₁-C₁₈alkyl or aryl; cyano; halogen; nitro; -COOR₁₂ or -SO₃R₁₂ wherein R₁₂ is in each case hydrogen, a cation or unsubstituted or substituted C₁-C₁₈alkyl or aryl; -SR₁₃, -SO₂R₁₃ or -OR₁₃ wherein R₁₃ is in each case hydrogen or unsubstituted or substituted C₁-C₁₈alkyl or aryl; -NR₁₄R₁₅; -(C₁-C₆alkylene)-NR₁₄R₁₅; -N^oR₁₄R₁₅R₁₆; -(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆; -N(R₁₃)-(C₁-C₆alkylene)-NR₁₄R₁₅; -N[(C₁-C₆alkylene)-NR₁₄R₁₅]₂; -N(R₁₃)-(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆, -N[(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆]₂; -N(R₁₃)-N-R₁₄R₁₅ or -N(R₁₃)-N^oR₁₄R₁₅R₁₆, wherein R₁₃ is as defined above and R₁₄, R₁₅ and R₁₆ are each independently of the other(s) hydrogen or unsubstituted or substituted C₁-C₁₈alkyl or aryl, or R₁₄ and R₁₅ together

with the nitrogen atom bonding them form an unsubstituted or substituted 5-, 6- or 7-membered ring which may optionally contain further heteroatoms; and $R_1, R_2, R_3, R_4, R_5, R_7, R_8, R_9, R_{10}$ and R_{11} are each independently of the others as defined above for R_8 or are hydrogen or unsubstituted or substituted aryl, with the proviso that

- (i) at least one of the substituents R_1-R_{11} contains a quaternized nitrogen atom which is not directly bonded to one of the three pyridine rings A, B or C and that
- (ii) Y is neither I^- nor Cl^- in the case that Me is Mn, R_1-R_5 and R_7-R_{11} are hydrogen and R_8 is



- 32. A metal complex compound according to claim 31, wherein Me is manganese which is present in oxidation state II, III, IV or V.
- 33. A metal complex compound according to claim 31, wherein Me is iron which is present in oxidation state II, III or IV.
- 34. A metal complex compound according to either claim 32 or claim 33, wherein the ligand L is a compound of formula (3)

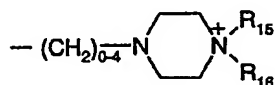


(3),

wherein

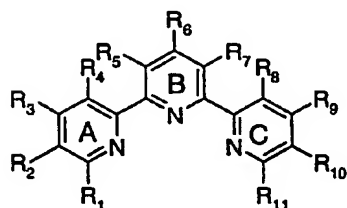
R'_6 is cyano; halogen; nitro; $-COOR_{12}$ or $-SO_3R_{12}$ wherein R_{12} is in each case hydrogen, a cation, C_1-C_{12} alkyl, or phenyl unsubstituted or substituted by C_1-C_4 alkyl, C_1-C_4 alkoxy, halogen, cyano, nitro, carboxyl, sulfo, hydroxyl, amino, N-mono- or N,N-di- C_1-C_4 alkyl-amino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, where the amino groups may be quaternized, phenyl, phenoxy or by naphthoxy; $-SR_{13}$, $-SO_2R_{13}$ or $-OR_{13}$ wherein R_{13} is in each case hydrogen, C_1-C_{12} alkyl, or phenyl unsubstituted or substituted as indicated above; $-NR_{14}R_{15}$; $-N^+R_{14}R_{15}R_{16}$;

$-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}\text{NR}_{14}\text{R}_{15}$; $-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$; $-\text{N}(\text{R}_{13})-\text{N}-\text{R}_{14}\text{R}_{15}$ or
 $-\text{N}(\text{R}_{13})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$, wherein R_{13} can be as defined above and R_{14} , R_{15} and R_{16} are
 each independently of the other(s) hydrogen, unsubstituted or hydroxyl-substituted
 $\text{C}_1\text{-C}_{12}$ alkyl, or phenyl unsubstituted or substituted as indicated above, or R_{14} and R_{15}
 together with the nitrogen atom bonding them form a pyrrolidine, piperidine,
 morpholine or azepane ring which is unsubstituted or substituted by at least one
 unsubstituted $\text{C}_1\text{-C}_4$ alkyl and/or substituted $\text{C}_1\text{-C}_4$ alkyl, wherein the nitrogen atom can
 be quaternized;
 or a radical



wherein R_{15} and R_{16} are as defined above and the ring may be substituted; and
 R'_3 and R'_9 are as defined above or are hydrogen, $\text{C}_1\text{-C}_{12}$ alkyl, or phenyl unsubstituted
 or substituted as indicated above.

35. A compound of formula (2b)

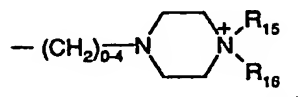


(2b)

wherein

R_6 is cyano; halogen; nitro; $-\text{COOR}_{12}$ or $-\text{SO}_3\text{R}_{12}$ wherein R_{12} is in each case hydrogen,
 a cation or unsubstituted or substituted $\text{C}_1\text{-C}_{18}$ alkyl or aryl; $-\text{SR}_{13}$, $-\text{SO}_2\text{R}_{13}$ or $-\text{OR}_{13}$
 wherein R_{13} is in each case hydrogen or unsubstituted or substituted $\text{C}_1\text{-C}_{18}$ alkyl or
 aryl; $-\text{NR}_{14}\text{R}_{15}$; $-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$; $-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}\text{NR}_{14}\text{R}_{15}$; $-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$;
 $-\text{N}(\text{R}_{13})-\text{N}-\text{R}_{14}\text{R}_{15}$ oder $-\text{N}(\text{R}_{13})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$, wherein R_{13} can be as defined above and
 R_{14} , R_{15} and R_{16} are each independently of the other(s) hydrogen or unsubstituted or
 hydroxyl-substituted $\text{C}_1\text{-C}_{12}$ alkyl, or phenyl unsubstituted or substituted as indicated
 above, or R_{14} and R_{15} together with the nitrogen atom bonding them form a pyrrolidine,

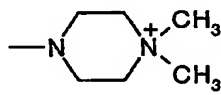
piperidine, morpholine or azepane ring which is unsubstituted or substituted by at least one unsubstituted C₁-C₄alkyl and/or substituted C₁-C₄alkyl, wherein the nitrogen atom can be quaternized;
or a radical



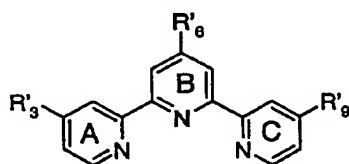
wherein R₁₅ and R₁₆ are as defined above and the ring may be substituted; and R₁, R₂, R₃, R₄, R₅, R₇, R₈, R₉, R₁₀ and R₁₁ are each independently of the others as defined above for R₆ or are hydrogen or unsubstituted or substituted C₁-C₁₈alkyl or aryl,

with the proviso that

- (i) at least one of the substituents R₁-R₁₁ contains a quaternized nitrogen atom which is not directly bonded to one of the three pyridine rings A, B or C and that
- (ii) Y is neither I⁻ nor Cl⁻ in the case that R₁-R₅ and R₇-R₁₁ are hydrogen and R₆ is



36. A compound according to claim 34 of formula (3)



(3),

wherein

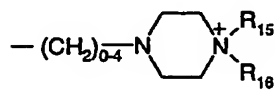
R'₆ is cyano; halogen; nitro; -COOR₁₂ or -SO₃R₁₂ wherein R₁₂ is in each case hydrogen, a cation, C₁-C₁₂alkyl, or phenyl unsubstituted or substituted by C₁-C₄alkyl, C₁-C₄alkoxy, halogen, cyano, nitro, carboxyl, sulfo, hydroxyl, amino, N-mono- or N,N-di-C₁-C₄alkyl-amino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, wherein the amino groups may be quaternized, phenyl, phenoxy or by naphthoxy; -SR₁₃, -SO₂R₁₃ or -OR₁₃ wherein R₁₃ is in each case hydrogen, C₁-C₁₂alkyl, or phenyl unsubstituted or substituted as indicated above;

$-\text{NR}_{14}\text{R}_{15}$; $-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$;

$-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}\text{NR}_{14}\text{R}_{15}$; $-\text{N}(\text{R}_{13})-(\text{CH}_2)_{1-6}-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$; $-\text{N}(\text{R}_{13})-\text{N}-\text{R}_{14}\text{R}_{15}$ or

$-\text{N}(\text{R}_{13})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$, wherein R_{13} can be defined above and R_{14} , R_{15} and R_{16} are each independently of the other(s) hydrogen, unsubstituted or hydroxyl-substituted C_1 - C_{12} alkyl, or phenyl unsubstituted or substituted as indicated above, or R_{14} and R_{15} together with the nitrogen atom bonding them form a pyrrolidine, piperidine, morpholine or azepane ring which is unsubstituted or substituted by at least one unsubstituted C_1 - C_4 alkyl and/or substituted C_1 - C_4 alkyl, wherein the nitrogen atom can be quaternized;

or a radical



wherein R_{15} and R_{16} are as defined above and the ring may be substituted; and

R'_3 and R'_9 are as defined above or are hydrogen, C_1 - C_{12} alkyl, or phenyl unsubstituted or substituted as indicated above.

37. A compound according to claim 34 or 35, wherein at least one of the substituents R'_3 , R'_8 and R'_9 is one of the following radicals

$-(\text{C}_1\text{-C}_6\text{alkylene})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$; $-\text{N}(\text{R}_{13})-(\text{C}_1\text{-C}_6\text{alkylene})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$;

$-\text{N}[(\text{C}_1\text{-C}_6\text{alkylene})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}]_2$; $-\text{N}(\text{R}_{13})-\text{N}^{\oplus}\text{R}_{14}\text{R}_{15}\text{R}_{16}$, wherein R_{13} is in each case hydrogen, C_1 - C_4 alkyl or phenyl and R_{14} , R_{15} and R_{16} are each independently of the others hydrogen or substituted or unsubstituted C_1 - C_{18} alkyl or aryl, or R_{14} and R_{15} together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms; or $-\text{NR}_{14}\text{R}_{15}$;

$-(\text{C}_1\text{-C}_6\text{alkylene})-\text{NR}_{14}\text{R}_{15}$; $-\text{N}(\text{R}_{13})-(\text{C}_1\text{-C}_6\text{alkylene})-\text{NR}_{14}\text{R}_{15}$;

$-\text{N}[(\text{C}_1\text{-C}_6\text{alkylene})-\text{NR}_{14}\text{R}_{15}]_2$; $-\text{N}(\text{R}_{13})-\text{N}-\text{R}_{14}\text{R}_{15}$, wherein R_{13} and R_{16} are as defined above and R_{14} and R_{15} together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which is unsubstituted or substituted by at least one unsubstituted C_1 - C_4 alkyl and/or substituted C_1 - C_4 alkyl and may contain further heteroatoms, wherein at least one nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.

38. A compound according to claim 34 or 36, wherein at least one of the substituents R'₃, R'₆ and R'₉ is one of the following radicals

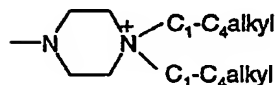
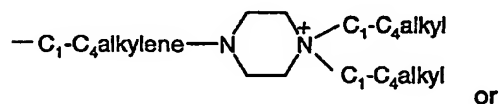
-(C₁-C₄alkylene)-N^oR₁₄R₁₅R₁₆; -N(R₁₃)-(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆;

-N[(C₁-C₆alkylene)-N^oR₁₄R₁₅R₁₆]₂; -N(R₁₃)-N^oR₁₄R₁₅R₁₆, wherein R₁₃ is as defined above and R₁₄, R₁₅ and R₁₆ are each independently of the others hydrogen or substituted or unsubstituted C₁-C₁₂alkyl or aryl, or R₁₄ and R₁₅ together with the nitrogen atom bonding them form a 5-, 6- or 7-membered ring which is unsubstituted or substituted by at least one unsubstituted C₁-C₄alkyl and/or substituted C₁-C₄alkyl and may contain further heteroatoms; or

-NR₁₄R₁₅; -(C₁-C₆alkylene)-NR₁₄R₁₅; -N(R₁₃)-(C₁-C₆alkylene)-NR₁₄R₁₅;

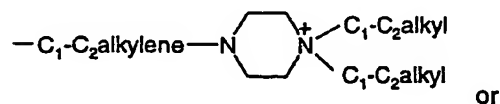
-N[(C₁-C₆alkylene)-NR₁₄R₁₅]₂; -N(R₁₃)-N-R₁₄R₁₅, wherein R₁₃ and R₁₆ are as defined above and R₁₄ and R₁₅ together with the nitrogen atom bonding them form a substituted or unsubstituted 5-, 6- or 7-membered ring which may contain further heteroatoms, wherein the nitrogen atom which is not bonded to one of the pyridine rings A, B or C is quaternized.

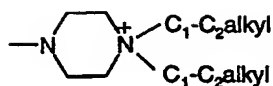
39. Use according to claim 34 or 36, wherein at least one of the substituents R'₃, R'₆ and R'₉ is one of the following radicals



wherein the unbranched or branched alkylene group may be substituted, and wherein the independently unbranched or branched alkyl groups may be substituted and wherein the piperazine ring may be substituted.

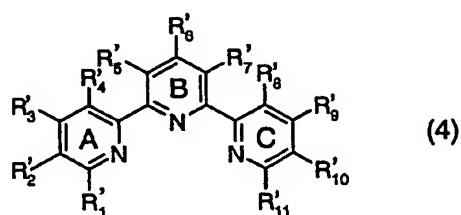
40. Use according to claim 34 or 36, wherein at least one of the substituents R'₃, R'₆ and R'₉ is one of the following radicals





wherein the unbranched or branched alkylene group may be substituted, and wherein the alkyl groups may be substituted independently of the other and wherein the piperazine ring may be substituted.

41. A compound of the formula (4)

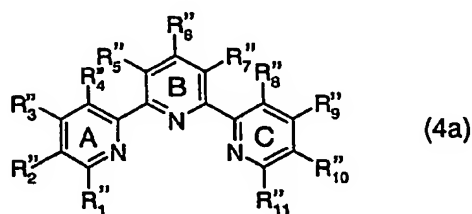


wherein

R'_1 – R'_{11} can have the meanings indicated for the substituents R_1 – R_{11} , with the exception of quaternized nitrogen atoms and the proviso that

- (iv) at least one of the substituents R'_1 – R'_7 is halogen, NO_2 or OR_{18} , wherein R_{18} is substituted or unsubstituted C_1 – C_{18} alkyl or substituted or unsubstituted aryl, and
- (v) the substituents R'_8 – R'_{11} are neither halogen, NO_2 nor R_{18} , wherein R_{18} is as defined under (i).

42. A compound of the formula (4a)



wherein R''_1 – R''_{11} have the meanings indicated for the substituents R_1 – R_{11} with the exception of quaternized nitrogen atoms and the proviso that at least one of the substituents R''_1 – R''_7 contains a quaternizable nitrogen group which is not bonded directly to one of the two pyridine rings A and/or B.

43. A washing, cleaning, disinfecting or bleaching agent, comprising
- I) 0 - 50 % A) of an anionic surfactant and/or B) of a non-ionic surfactant,
 - II) 0 - 70 % C) of a builder substance,
 - III) 1 - 99 % D) of a peroxide, and
 - IV) E) a metal complex compound of formula (1) in an amount which, in the liquor, gives a concentration of 0.5 – 50 mg/litre of liquor, preferably 1 - 30 mg/litre of liquor, when from 0.5 to 20 g/litre of the washing, cleaning, disinfecting and bleaching agent are added to the liquor,
- the percentages in each case being percentages by weight, based on the total weight of the agent.
44. A solid preparation, comprising
- a) from 1 to 99 % by weight of a metal complex compound according to claim 31;
 - b) from 1 to 99 % by weight of a binder;
 - c) from 0 to 20 % by weight of an encapsulating material;
 - d) from 0 to 20 % by weight of a further additive; and
 - e) from 0 to 20 % by weight of water.
45. A solid preparation according to claim 44 which is in the form of pellets or granules.